article to be produced, in general pressures up to 470 tons/cm^2 (1ton = 1,000kg) can be used.

In an alternative embodiment of the present invention the treatment is carried out by gradually raising the temperature from about 20°C to about 400°C, preferably about 20°C to about 250°C over a period of time between about 5h and about 30h, preferably about 5h and about 20h.

The amount of binder is to be selected so as to not clog the cavities and pores in between the matrix particles. This is necessary in order to ensure the desired porosity of the shaped article. In view of this it is necessary to use an appropriate ratio of matrix particles to polymer binder. According to the invention the weight-ratio of matrix particles to polymer binder is chosen to be from about 100:10 to about 100:0.1, preferably from about 100:8 to about 100:1.0, most preferably from about 100:8 to about 100:3.5.

In case that a liquid, curable polymer binder (b) is used, for instance an epoxy resin, the inorganic matrix particles, the epoxy-resin and an appropriate amount of curing agent for the epoxy-resin are mixed immediately before forming the mold. In general the short pot life after addition of the curing agent requires an immediate processing of the composition. In contrast to the thermoplastic binder polymers (a) the non-thermal curable epoxy resin (b) can be applied if temperature sensitive master molds shall be transferred to a mold.

To avoid clogging of the pores of the obtained porous materials the mixture of the matrix material and binder polymer (b) should form a so-called "dry mixture". This means that after thoroughly mixing the matrix particles and the polymer, a thin layer of the binder polymer covers each individual particle of the inorganic spherical matrix material. As already mentioned above in conjunction with binder polymer (a) the amount of the curable binder polymer is selected to be sufficient to cover the surface of the spherical particulates without filling and clogging the cavities between the micro-spheres.

A "dry mixture" consists of matrix particles and a binder polymer in a weight ratio of about 100:10 to about 100:0.1, preferably in a ratio of about 100:8 to

about 100:1.0, most preferably in a weight ratio of about 100:8 to about 100:3.5.

The heat and pressure treatment is carried out depending on the nature of the epoxy binder polymer. Typically, the treatment is carried out between about 0.5h and about 30h, preferably between about 0.5h and about 25h.

In addition the temperature of the treatment has to be selected depending from the epoxy binder polymer. When using a liquid chemical curing agent (b) the heat treating temperature is below the melting point of the polymer. Typically, the processing temperature is between about 20°C and about 400°C, particularly between about 100°C and about 250°C.

The applied processing pressure depends on the shape and structure of the article to be produced, in general pressures up to 470 tons/cm^2 can be used.

In an alternative embodiment of the present invention the treatment is carried out by gradually raising the temperature from about 20°C to about 400°C, preferably about 20°C to about 250°C over a period of time between about 5h and about 30h, preferably about 5h and about 20h.

In case that an aqueous solution of alkali silicates, for instance, sodium and/or potassium water-glasses (c) is used, the inorganic matrix particles and the aqueous water-glass are mixed before forming the mold. In contrast to the thermoplastic polymer binder (a) and to the curable epoxy resin (b), molding tools which are manufactured by use of water-glass (c) have a superior heat stability and show heat distortion temperatures above 800 °C. The molding tools comprising hardened alkali silicates as the binder can be utilized for molding of low melting metals and metal alloys.

To avoid clogging of the pores of the obtained porous materials the mixture of the matrix material and alkali silicates such as water-glass (c) should form a so-called "dry mixture". This means that after thoroughly mixing the matrix particles and the water-glass a thin layer of the water-glass covers each individual particle of the inorganic spherical matrix material. As already mentioned above in conjunction with binder polymers (a) and (b) the amount of the alkali silicate binder is selected to be sufficient to cover the surface of

the spherical particulates without filling and clogging the cavities between the micro-spheres.

A "dry mixture" consists of matrix particles and the alkali silicate in a weight ratio of about 100:10 to about 100:0.1, preferably in a ratio of about 100:8 to about 100:1.0, most preferably in a weight ratio of about 100:8 to about 100:3.5. The weight of the alkali silicate being determined on the weight of the dry alkali silicate.

The heat and pressure treatment is carried out between about 0.5h and about 30h, preferably between about 0.5h and about 25h.

The processing temperature is between about 20°C and about 900°C, particularly between about 100°C and about 400°C.

The applied processing pressure depends on the shape and structure of the article to be produced, in general pressures up to 470 tons/cm^2 can be used.

In an alternative embodiment of the present invention the treatment is carried out by gradually raising the temperature from about 20°C to about 900°C, preferably about 20°C to about 250°C over a period of time between about 5h and about 30h, preferably about 5h and about 20h.

When making the porous shaped article of the invention from the above-mentioned compositions the pore-volume may additionally be influenced by a chemical foaming agent which may be used to enlarge the cavities and pores between the matrix particle spheres. Enlarging the pore-size leads to an increased fluid-permeability, such as air-permeability of the obtained porous article. Chemical foaming agents which may be used for said purpose are selected from NH_4HCO_3 and $Ca(H_2PO_4)_2$ in combination with traces of water. Preferably the chemical foaming agent is present in an amount of about 0.1 to about 2.0 wt.-%, most preferably of about 0.1 to about 1.0 wt.-%, based on the total amount of the composition.

The porous article, for instance, a mold has (micro-)pores evenly distributed over the surface and throughout the article. This permits the fluid to evenly flow through the entire surface of porous article. This is advantageous in that, in case of using the mold in a deep-drawing method, the film to be deep-